

Undersea Battleships For America
Will Revolutionize Ocean Fighting

Problem of Submersible Dreadnaught Exercising Naval Experts' Minds—12 Submarine Cruisers Ordered With Torpedo Tubes, Some of Them On Decks.

—BY—
Rene Bache

WASHINGTON, D. C., Sept. 16.—Is the submersible battleship destined soon to arrive? Many naval authorities, notably among them Capt. William S. Sims, U. S. N., think so.

The great war in Europe, so far as offense is concerned, has been to a large extent a conflict of new military inventions. But its most novel and striking defensive feature has been concealment.

It has been a war of hiding. Mars, for the first time in history, has put on the cap of invisibility.

In the warfare of the future this method of fighting will be extended from the land to the sea. Already, indeed, the tendency has made itself manifest in the submarine boat.

1-Boats Wonderfully Developed.

The submarine is undergoing wonderfully rapid development. Even now it has assumed such dimensions and has acquired such speed, as to have gained the character of an undersea "destroyer." Types of warships now-a-days are showing a tendency to merge into each other. The "destroyer" now is an heavily armed, torpedo-boat. Magnified still further, it becomes a "light cruiser," the up to date naval scout.

The difference between a heavy cruiser and a battleship is mainly one of armor and size of guns. As time goes on, the submarine is certain to grow to a bigness at least approaching that of a dreadnaught; and the latter may be driven, for self preservation, to hide under water.

Dreadnaughts May Submerge.

Thus there may come a time when the dreadnaught and the submarine, approaching each other in design, will go to sea, concealed, structurally. The submarine will become in effect a battleship, and the battleship a submersible craft.

It is argued that, with the enlargement and indefinite multiplication of submarines, and the increase of their efficiency as engines of maritime warfare, their threat to surface craft, no matter how heavily armored, and how formidable gunned, must compel the latter to seek the only possible refuge, which is under the sea.

May Fight Under Sea.

When two fleets of submersible dreadnaughts are engaged, battle tactics necessarily will be very different from those followed today. Success in the fight will depend largely upon cleverness in hiding. A ship, finding itself opposed by a superior antagonist, will escape unharmed by disappearing, to come to the surface again

miles away, perhaps, and attack from an unexpected quarter.

It goes without saying that such a battleship must have high speed and great steaming radius, meaning by the latter term that it will be able to cruise a very long distance without replenishing its fuel supply. For both surface and under water running it will employ enormously powerful automobile engines of the internal combustion type.

Oil The Probable Fuel.

This problem of using a single set of engines for surface and sub surface cruising, has not yet been solved; but in the opinion of experts, it will be before long. When the puzzle has been finally worked out, there will be no more trouble with battery leakage. Oil will be the only fuel. Electricity, for propulsion under water, will be dispensed with, and there will be no necessity for coming to the surface to charge exhausted batteries.

To Build 12 Submarine Cruisers.

The naval programme newly adopted by congress provides for the building of nine fleet submarines, which will be much larger than any known to have been constructed up to date by any foreign power. They might be called submersible cruisers. For each of them will be 260 feet long, with a speed of 20 knots, and a steaming radius of 7000 miles on the surface, or 350 miles under water.

We shall have twelve of these super-submarines, money for three having been appropriated some time ago. They will all be substantially alike, with powerful engines and a displacement of 1000 tons, and will cost \$1,300,000 apiece. Each of them will have to torpedo tubes, four of which being mounted on pivots on the deck, will be in effect guns that discharge torpedoes instead of shells.

Withdraws Small Guns.

Now, this type of super-submarine offers more than a suggestion of the submersible battleship of the future. It is even provided with 3-inch guns, which, when the boat is about to sink, are withdrawn into the hull in much the same way as a typewriter disappears into a desk, water tight hatch being bolted over them. But, of course, weapons of such small caliber are useful only for defense against destroyers and other small warcraft.

To Be Torpedo Battleships.

The practicability of mounting big guns on a submersible battleship is disputed. On the other hand, torpedo tubes cannot take the place of huge high power rifles, such as dreadnaughts carry, because the firing range of a torpedo is too short. Hence it is possible, and by Capt. Sims is deemed likely, that the coming under water battleship will be a distinct type, not replacing the dreadnaught, but supplementing it.

plementing it. He calls this warcraft of the future a "torpedo battleship."

The torpedo battleship, as he describes it, would be in effect a monster submarine, perhaps of 20,000 tons, two-thirds the size, that is to say, of modern dreadnaught. With very little in the way of upper works, and possibly of "whaleback" pattern, it would be heavily armored so as to be able to fight on the surface of the sea. The machinery and other "vitals" of the craft would be further defended by a protective deck just above the water line, an arched sheet of steel six inches or more in thickness.

Would Cruise Awash.

The vessel, when cruising on the surface, would expose to the enemy's view nothing worth mentioning except two small and heavily armored conning towers, one forward and one aft, and an armored smoke pipe for her oil burning internal combustion engines. She would lie so low in the water that, with a moderate sea running, her armored decks would be awash. She would be, perhaps, 600 feet long, and would carry no guns, save a few small ones for defense against small fry warcraft. Her sole reliance, for offense, would be torpedoes. She would have 16 torpedo tubes, eight on the port and eight on the starboard side, so arranged as to be fired from 20 feet beneath the surface. Give such a vessel a surface speed of 20 knots, and she would be a tremendously formidable fighter.

Would Be Difficult To Hit.

She would offer no vulnerable target to gunfire. It would be difficult to put her out of action, because of her heavy armor, protection above the water line. With almost no deck, or upper works showing, she would be hard to hit. The modern high power naval rifle has a very flat trajectory. In other words, the path of its projectile is almost horizontal. A 12-inch shell, striking the curved steel back of the torpedo battleship, would be likely to glance or bounce, rather than to penetrate.

Would Fight In Second Line.

Vessels of this type, according to Capt. Sims' idea, would not operate in line of battle with dreadnaughts, but would lie behind the latter, hidden from the enemy's view, but ready to strike a dash at the opposing battleships and sink them with torpedoes. The suddenness of their attack and the terror of their torpedo equipment would be relied upon to disarrange the foe's fighting plans. Meanwhile, in the midst of the turmoil of battle, it would be difficult for the enemy to sink or disable them.

It is easy to imagine the tactical influence—especially through demoralization of the foe—of a dozen or more swift submersibles of giant size, lying in wait behind the first line of battle-

ships, their turtle backs barely showing above water, and, of course, wholly invisible to the enemy, their immediate object being to destroy or throw into confusion the opposing first line.

The special tactical object of the torpedo battleship would be to get behind the enemy's battleships, to charge the line on its unarmored side, and fire torpedoes at such short distances that misses could hardly be made. In order to operate effectively in this fashion, high speed, implying great engine power, to drive the vast submersible bulk, would be indispensable. The torpedo battleship, in fact, must be swifter than the dreadnaught.

Would Not Replace Battleships.

Capt. Sims says that the suggested torpedo battleship would cost about as much as a dreadnaught, to build, but the total expense of putting it afloat as a fighting unit would be about 25,000,000 less because it would require no big guns or ammunition for such guns. He lays emphasis on the fact that such a vessel could be utilized as an auxiliary for purposes of offense, it could carry only a few dozen torpedoes, whereas a first class battleship is provided with 1100 big projectiles. The decision of a fleet commander would ultimately be determined by gun power; no other type of craft can replace the battleship.

This, of course, is only one man's opinion. The decision of other experts who think that the battleship of the future will be a submersible, and yet carry the biggest of guns in low targets arranged monadically, one should not forget, perhaps, that the American invented monitor, of the civil war and afterwards, was, and still is, in a sense, a semi-submersible, all of it below the deck being under water.

Might Seal Up Deck Guns.

In a submersible battleship with torpedoes, arranged in the manner described, the gun ports could be closed by automatic shutters, and the gun muzzles themselves sealed in water tight fashion. When the vessel was about to sink. Necessarily, inventive ingenuity would be called upon to devise satisfactory methods by which such protection for the big rifles could be provided during submergence. The problem does not seem to be insoluble, and, if it can be worked out satisfactorily, the submersible dreadnaught, corresponding to the already-existing type, yet able to submerge when desired, may eventually become a reality.

Household Suggestions

New enamel pans. If placed in a pan of water and allowed to come to the boil and then cool, will be found to last much longer without burning or cracking.

If milk is heated until lukewarm, then chilled suddenly, there will be much more cream. Intelligent persons will form should be removed by straining through muslin.

If copper pans are not very carefully washed there is danger that they may poison the food cooked in them.

When making mince pies, add a little brown granulated sugar to the mince, and the chopping will be much easier, and accomplished more quickly, too.

President Wilson recently gave his personal check for \$2000 to be divided among the hospitals of Monmouth county, N. J., in lieu of a check for the same amount drawn on his summer residence.

Inter-Atomic Energy
Some Day May Give
Us Trips to the Moon
Garrett P. Serviss Says Journeys Through Space
Can Be Accomplished As Soon as Someone Unlocks the Tremendous Power of the Atoms,
Which Is Not At All Impossible.

BY GARRETT P. SERVISS.

WITHIN a few weeks past I have been asked to address two different aeronautical societies on the curious subject of the possibilities of a trip to the moon.

As far as I am aware this does not indicate an intention on the part of any aviator to essay a voyage to our satellite, but, at least, it shows that the flying instinct is growing by what it feeds upon, and that, having navigated the air, practical men are giving a little extra turn to their imaginations and wondering whether the empire of birds marks the ultimate frontier of human conquest.

In fact, the dream of going to the moon, which, in every age, has occupied daring minds, is hardly more impracticable at the present time than would have been a project springing up in the mind of Balboa, of making ships sail across from the Atlantic to the great western ocean which he saw from his peak in Darien.

Recent Discoveries Make It Unsettled to Scoff at "Dreams" of Imagination. But it is not the invention of either the airplane or the dirigible balloon that stimulates thoughtful minds at the present time to consider, half seriously, the idea of a lunar voyage. The success of those inventions, defying scientific predictions and probabilities, only forms an incentive. It turns men's minds hopefully to things that have hitherto been regarded as lying beyond the limits of human power.

It has always been so. Every great advance has been the result of the daring, derided or laughed at. Each one of them has been a victorious birth of the imagination. The greatest drag on progress is lack of faith in the hidden capacities of man.

"Verily, I say unto you, if ye have faith, as a grain of mustard seed, ye shall say unto this mountain, Remove hence to yonder place, and it shall remove; and nothing shall be impossible unto you."

There is high authority for believing that we are only just beginning to discover the extent of our control over nature, and such things as wireless telegraphy, X-ray photography and the disintegration of atoms, with consequent unlocking of tremendous concealed energy, prove that hitherto we have been like the man who buried his talents in the earth instead of making them produce 10 or a hundred fold.

Many Captains Have Traveled Farther Than the Distance to the Moon.

Suppose we look at the subject of visiting the moon in the light of present knowledge. The distance in itself is nothing—240,000 miles! Many a sea captain has sailed much farther than that. It is less than 16 times the circuit of the earth.

If the atmosphere extended from the earth to the moon, we could go there now by modifying our present apparatus. At a hundred miles an hour we could be there in a hundred days! But at the height of five or six miles the atmosphere becomes so rare that we could not live in it without an artificial supply. Yet unmanned balloons have gone 10 miles high, and meteors take fire from friction at an elevation of a hundred miles or more.

Still the atmosphere does practically cease to exist at no very great elevation, and cuts short off the road of the balloon and the airplane.

We must turn to something else. The buoyant force of air enables us to overcome the gravitational attraction of the earth only up to a moderate height. Beyond that something more is needed. I have learned with surprise that many intelligent persons suppose that if we once got outside the air motion would be unimpeded. For instance, a man said to me the other day:

"Suppose an aeroplane could mount straight up until it passed the limits of the atmosphere, then having nothing more to impede its motion, it would go on with whatever velocity it had when it left the air."

In fact, this could only occur to ease the velocity of the aeroplane amounted to nearly seven miles per second, for that velocity would come the pull of the earth's fall back to the earth.

This is the reason why Jules Verne, in his amusing story of "A Voyage to the Moon," had his adventurers shot out of a enormous cannon. Only in that way, he thought, could the requisite initial velocity be obtained.

Some Day A Bold Mind May Loose the Tremendous Power of the Atom.

But a bold mind might, in view of recent discoveries, speculate on the limitative power that may be obtained from unlocking the energies of the atoms of small matter. Professor Thomson has calculated that a single cent of energy to lift a million tons of heavy goods! Does anybody imagine that that unlimited store of energy is going to remain unexploited by human genius? We have discovered its existence, the next thing is to take it and use it.

Suppose we had it under control, as we shall have it some time. Then reflect upon the close relation between atomic phenomena and electricity, and recall the familiar experiment of making bits of pitch fly away from an electrically charged ball. If we could construct some kind of car that could be powerfully charged with electric energy we might be able to make it fly away from the charged conductor of the electric machine.

Then it would be necessary to establish a system of control by which the speed and direction could be regulated by varying the charge—and the problem of navigating space would be solved. I have developed this (of course purely hypothetical) idea somewhat farther in a story called "A Columbus of Space."

Such a method would avoid all the difficulties, really insuperable, that hampered Jules Verne's plan of a projectile starting at a velocity of almost seven miles per second.

However, when we get the atomic energies under control, our first efforts will be directed to making more money out of them, and trips to the moon will only begin to pay after we have got tired of purely earthy things.

Dr. Edward H. Roberg, a prominent physician of Washington, D. C., has been given the rank of brigadier general in the Russian army. This is the highest command in any European army that has been attained by an American during the present war.

United States senator John H. Bankhead of Alabama has the honor of being the only confederate sitting in the United States senate.

France is the best cultivated country in Europe.

Annette Kellermann's Training
For El Paso Herald Swimming Pupils

Famous Swimmer Tells About the Proper Foods, the Time to Eat, About the Use of Goggles to Protect the Eyes; Also About Choosing Your Type of Swimming.

Article No. 19.

BY ANNETTE KELLERMANN.

I SHALL give you today a few points on training. These rules should be followed carefully and they will be found very useful to all of you, whether you are in training or not. Always remember that if you are competing or attempting a swimming record that the less water you displace, the more of a chance you will have in being successful. Try to glide through the water. Don't splash frantically, for then you will only impede the movement of the body.

Try to cut the water cleanly. I have told you MANY times, to perfect yourself, for it is only by doing so that you will be able to accomplish anything.

If you are entered in, or attempting a long distance swim, eat well the day before. Try to gain a few pounds for you will lose them easily when in the water.

I generally eat a bountiful meal the day before. When I attempted to swim the English channel, just before starting I had my maid rub my body well with a heavy oil until the skin was well coated. I had this done so as to keep the body warm.

For food I always used bottled chick-

reach them, the ears too, should be well taken care of. There is grave danger at all times, in the shape of an abscess of the ear for those who swim. I cannot tell you what to use, but there are several articles on the market which you can purchase at the local drugists which, I believe, are very good.

Please do not use a cotton stopper for that is highly dangerous. I try always to wear a rubber cap that will fit tightly about the ears, and if one does not do the trick, I wear TWO and sometimes THREE.

When attempting to swim do not try to make it too long a distance until you are absolutely certain you can make it. Always have a row boat within call. In fact, you should never

mer and a speed merchant at the same time. Of course, a distance swimmer may be very fast for distance swimming. But even at that, a fast long distance swimmer, with very few exceptions, is never a real sprinter.

A different kind of energy is applied to sprinting, and when a short-distance speed swimmer starts indulging in long swims, almost invariably it is at the expense of snap and vigor.

In distance work the swimmer falls into a steady even stride, striking as a rule a certain number of strokes to the minute. Of course, a distance swimmer will extend herself and apply her best energies to making the best swim possible for the swim she is making, trying, if possible, to take mis-

ANNETTE KELLERMANN,
GREATEST WOMAN
SWIMMER AND
STAR OF WILLIAM FOX
\$1,000,000 PICTURE

uses off a record; or, if it is a new swim, to set a mark so low that it will stand unbroken.

Long distance swimming, if the swimmer is well trained, becomes more of a mechanical affair the second or third mile. Again, all long distance swims, with few exceptions, are made in tidal water and, of course, the swimmer derives a great amount of help, because no one would think of swimming against the tide.

Short distance races are usually swum over a still water course, and this, of course, entails greater effort.

Monday: Racing Games in the Water. Miss Kellermann tells you how and what to play. These games will be the source of much amusement and benefit for her pupils.

Mother and Son—Happy Couple

Drawn by Nell Brinkley



BY NELL BRINKLEY

I made this picture on the boardwalk at Atlantic City. It shows one of the best known women of Chicago and New York city, Mrs. Mollie Nether Neuberger, riding in one of the big chairs with her good looking son, Townsend Nether.

Mrs. Neuberger although she personally manages one of the biggest enterprises in the United States and with her

own business genius has beaten most of the business men at their own game, seems to find time to enjoy herself.

She has two sons and one daughter. The boy shown here is the kind that the tailors would like to have to put in their advertisements, more than six feet high and several feet wide and very good looking. A fortunate mother, and a fortunate son to have such a mother.

HOGWALLOW NEWS

Dunk Botts, Regular Correspondent.

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(George Bingham.)

SINCE the mice have got so bad at Poke Ezley's home he has decided that it is no longer safe for him to sleep with his mouth open.

The postmaster uses every precaution against robbers at all times of the day and night, and so far has been robbed but a very few times. A short while ago, he grew suspicious while engaged in a game of seven-up for a jug of beer, in the front end of the postoffice, when he heard somebody fingering around in the back end, and as soon as he had played his hand he made an investigation and found that the intruder was only a postoffice inspector that had come in the back way.

Fearing an unexpected visit of the pure food inspector last week the editor of the Tickville Tidings set his office towel out the back door.

The cracks in the Gimlet creek bridge have been stopped up as Slim Pickens is expected to cross there this week.

Miss Ross Moseley evidently believes in preparedness as she was seen to receive a large consignment of face powder this week.

Jefferson Potlocks, who has been living on the public road for several years, and has succeeded in seeing nearly everybody that passes, has come to the conclusion that people are very much alike the world over, about the only difference being that some are going one way and some another, and some travel slow and some fast.

Luke Mathews has figured out how much he has saved in neckties during the past twenty years by wearing long whiskers.

Sidney Hooks went to the singing on Musket Ridge Saturday night but could not sing bass as he had on his stiff blouse skirt.

Ellick Heilwanger's feet were seen pointing in the direction of the Calf Ribs widow last Sunday.

Adley Peck is fixing to spend a week at Bounding Bluffs. His wife carries out her plans by spending a week with her folks at Bounding Bluffs.

Fletcher Henstap, leader of the Excelsior fiddling band, and a musician of note, was heard yesterday criticizing the music that is being made by the frogs in Gauder creek bottoms. He says a frog never was cut out for a musician.

The postoffice in the Calf Ribs neighborhood was entered and robbed of several two-cent stamps one night last week. The mail carrier has been given a description of the stamps and will keep a watchout for them.

To test the efficiency of the government's postoffice department, Slim Pickens this week wrote a letter and sent it away without addressing it.

Frisby Hancock was among those that attended a debate at the Wild Onion school house Saturday night. The question was "Resolved, in Education Any Benefit to a Person that Hasn't Any Sense?" The Wild Onion school teacher took the affirmative side in self defence.

Jefferson Potlocks has moved the wash kettle and tubs to the creek for his wife, so that she can admire him while he fishes.

The Hog Hill church people have bought a clock to be used by their pastor on Sundays, and have done away with the alarm clock they have been using.

R. J. Ridgely, teacher of the public school at Burtsville, Mo., has just completed his twenty fifth year as a pedagogue, and is that time has never been absent from his school except a single hour on account of illness.

Colonel Harry L. Rogers, who buys all the supplies for General Funston's men at the Mexican border, is the biggest spender in Texas.

Today's Plainest Dish

BY CONSTANCE CLARKE.



Striped and Plaid Sandwiches.

NOVELTY is not the only virtue that these attractive sandwiches have to offer, for they are both appetizing and wholesome.

To make them, cut square slices of dark graham bread, also of white bread. Some of these are buttered only one side, and then stuck together, this forming the striped sandwich. The plaid, or checkered sandwich, is formed by buttering two sides of each square strip and putting them together as illustrated. Garnish the

platter they are to be served with lettuce and serve with pickled onions, as a relish.

Fillings that are much appreciated by the children are peanut butter, sardines and chopped olives, grated cheese and chopped apple, chopped walnuts and cream cheese, minced chicken and chopped celery, chopped almonds and banana, chopped raisins and cream cheese, chopped dates and walnuts, cream cheese, chopped tomatoes and chives.—Monday—Fruits, Nuts, Tomatoes. Copyright, 1916, International News Service.